

REMARKS

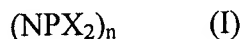
Claims 1-11 are pending.

Response to Rejection Under § 102

Claims 1-4 and 9-11 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by EP 1,347,530 to Otsuki et al. Applicants respectfully traverse.

The combustion properties of an electrolyte can be affected by adding a non-combustible agent having a similar boiling point to that of an aprotic organic solvent used in the electrolyte. Specifically, phosphazene compounds containing at least two kinds of halogen elements, having a broad range of boiling points¹ (i.e., a range of boiling point of phosphazene compounds can be broadened) as compared with phosphazene compounds containing only one kind of halogen element, make it is possible to give non-combustibility to various electrolytes comprising an aprotic organic solvent. This is accomplished by properly selecting one of these phosphazene compounds containing at least two kinds of halogen elements and adding it to the electrolyte.

In this regard, present Claim 1 recites an additive for a non-aqueous electrolyte in a battery composed of a phosphazene compound represented by the following formula (I):



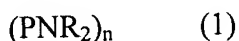
(wherein Xs are independently a halogen element, and n is an integer of 3-15) and contains at least two kinds of halogen elements.

According to formula (I), at least two kinds of halogen elements are directly bonded with one or more phosphorus. Given this chemical structure, the additive of present Claim 1 is not

¹ Table 1 of the present specification discloses phosphazene compounds represented by presently claimed formula (I), and containing at least two kinds of halogen elements having a broad range of boiling points.

vaporized during use under high temperature, thereby ensuring the safety of the electrolyte even in an emergency such a short-circuit or the like. Further, the additive has a sufficiently low freezing point, and thus, exists as a liquid even at a low temperature. Accordingly, the additive of the present invention can improve the low-temperature characteristics of the battery significantly.

In contrast, Otsuki discloses a phosphazene derivative represented by the following formula (1):



(wherein R represents a monovalent substituent or a halogen atom and n is 3 to 6).

Otsuki further discloses that alkoxy groups are particularly preferable as the Rs in formula (1), and the working Examples of Otsuki disclose a phosphazene derivative of the formula (1) wherein all Rs are the alkoxy group. Otsuki, however, does not disclose or suggest a phosphazene derivative represented by formula (1), wherein R represents at least two kinds of halogen elements. Further, Otsuki fails to disclose or suggest a phosphazene derivative represented by formula (1), wherein each R represents a halogen element. In other words, Otsuki fails disclose or suggest an additive for a non-aqueous electrolyte in a battery as recited in the present claims. Thus, Otsuki fails to anticipate or render obvious the present claims. Accordingly, withdrawal of the rejection is respectfully requested.

Response to Rejection Under §§ 102/103

Claims 5-8 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Otsuki.

We note that at page 3 of the Office Action, the Examiner indicates that the rejection of Claims 5-8 is over JP 2003-249233 to Masami et al. Based on the reasoning in support of the rejection, we believe the Examiner meant to reject claims 5-8 over Otsuki.

Applicants respectfully traverse.

Claims 5-8 are patentable at least by virtue of their dependence from Claim 1. Further, with respect to Claim 8 in particular, Applicants note that the phosphazene derivative of formula (1) disclosed in Otsuki is solid at 25°C, so it cannot have a freezing point of not more than -5°C. Therefore, Claim 8 is patentable over Otsuki for this additional reason. Accordingly, withdrawal of the rejection is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Bruce E. Kramer
Registration No. 33,725

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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